

REMARKS

STATUS OF THE CLAIMS

Claims 1-87 are currently pending. Claims 1, 10-12, 37, and 62 have been amended, and support for the amendment to each claim is discussed below.

Support for the amendment to claim 1 may be found in the specification as originally filed, and in originally filed claims 5 and 12. No new matter has been introduced by the amendment.

Claims 10 and 11 have been amended to remove the language "the group consisting of" in order to redraft these claims in a manner consistent with the other pending claims. No new matter has been introduced by these amendments.

Claim 12 has been amended to change its dependency from claim 11 to claim 1. No new matter has been introduced by the amendment.

Claim 37 has been amended to insert that the basis of the recited 50:50 blend of the at least one photoinitiator is based on the total weight of the dispersion. Support for the amendment to claim 37 may be found in the specification as originally filed, e.g., in the paragraph bridging pages 3-4 of the specification. Again, no new matter has been introduced by the amendments.

Support for the amendment to claim 62 may be found in the specification as originally filed, e.g., page 14, lines 11-16, page 15, lines 1-9 and elsewhere. No new matter has been entered by the amendments.

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CLAIM REJECTIONS - 35 U.S.C. § 112

Claims 1-87 were rejected under 35 U.S.C. § 112, second paragraph, as being allegedly indefinite for reasons set forth in sections 3-7 of the Office Action. Claims 1-3, 14, 15, 18, 21, 36, 62, and 76 were rejected for allegedly using "improper Markush terminology." Office Action, page 2, section 3. Applicants respectfully request reconsideration for the following reasons.

Applicants respectfully submit that the phrase "X is selected from A, B, and C" is proper language and more accurately describes the claimed invention, i.e., the composition may contain one or more X with each X independently selected from the group A, B, and C. For example, both Applicants' claim language and the Examiner's proposed change cover a composition of the invention that may contain: A, A and B; or two A's, two B's, and a C, as well as other permutations. Applicants' claim language is clearer, and provides no uncertainty or ambiguity with respect to the question of scope or clarity of the claims. Moreover, the Examiner has shown no legal basis, nor does any exist, for requiring Applicants to change it.

Furthermore, the U.S. Patent and Trademark Office has provided examples of proper alternative claim language similar to Applicants' claim language. Specifically, Applicants direct the Examiner to an example of proper alternative claim language set forth in the M.P.E.P.: "wherein R1 is methyl or phenyl, X and Z are selected from oxygen (O) and sulfur (S)." See M.P.E.P. Appendix AI (PCT), Example 20, pp. A1-61 and A1-62 of the August 2001 edition. For at least these reasons, Applicants request that the rejection be withdrawn.

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Claim 12 was rejected for the reasons set out in section 4 of the Office Action. Applicants respectfully request reconsideration in view of the amendment making claim 12 depend from claim 1. Applicants submit that there is clear antecedent basis for the terms of claim 12 in claim 1.

Claim 37 was rejected for reasons explained in section 5 of the Office Action. Applicants request reconsideration in view of the amendment to claim 37, which recites the basis for the 50:50 blend.

Claims 47, 58, and 68 were rejected, allegedly because the claims do not specify the order of exposure of ionizing or actinic radiation and thermal energy. Applicants respectfully request reconsideration. As the claims do not limit with respect to order, they encompass any order, including simultaneous exposure. Accordingly, the meets and bounds of the claims are clear on this point, and Applicants respectfully request withdrawal of the rejection.

Claims 59-61 and 73-75 were rejected allegedly because they "recite preambles that are indefinite because they each fail to set forth the specific process steps required to achieve the desired effect (other than simply reciting that the coating is formed over at least a portion of the substrate.[]]" Office Action at page 3, section 7. Applicants respectfully request reconsideration. Taking claim 59 as exemplary, the phrase "forming a composition according to claim 1 over at least a portion of the substrate" recites the elements of the claimed process. Claims 60, 61, and 73-75 similarly recite elements of the claimed process with claims 60 and 61 dependent on claim 1, and

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claims 73-75 dependent on claim 62. Accordingly, the claims are definite and the rejection should be withdrawn.

CLAIM REJECTIONS - 35 U.S.C. § 102

Claims 1-4, 6-11, 18-19, 33-36, 40-49 and 54-87 were rejected under 35 U.S.C. § 102(b) as being anticipated by Maag et al. (WO 98/40170). The Examiner (and Applicants herein) refers to U.S. Patent No. 6,333,077, the apparent English language counterpart to WO 98/40170. Applicants respectfully traverse for the following reasons.

Independent claim 1 has been amended to recite that at least one of component (a) (the first material) and/or component (b) (the second material) comprise at least one polysiloxane. See claim 1 as amended. As the Examiner admits, Maag neither teaches nor suggests a curable composition comprising at least one polysiloxane in either "system A)" or "system B)" of the disclosed composition. Office Action, pages 5 and 6, sections 13 and 14. Consequently, Maag cannot anticipate (or render obvious) claim 1 or any of the claims that depend from claim 1.¹

Independent claim 62 has been amended to recite that the second material comprise at least one vinyl group. Maag not only fails to describe such a composition, it actually teaches away from one. Indeed, Maag's component A) (the thermally curable component) "contains substantially no free-radically polymerisable double bonds and

Wilt about B)
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¹ In section 13 of the Office Action, the Examiner alleges that it would have been obvious to incorporate Maag's polysiloxanes into system B) of Maag's composition. Office Action, section 13, the rejection of claim 5. In section 14 of the Office Action, the Examiner alleges that it would have been obvious to incorporate Wilt's polysiloxanes into component A of Maag's composition. Applicants address each in their response to the rejections made under section 103(a), below.

substantially no groups capable of reacting in another way with free-radically polymerisable double bonds of a system B)." See Abstract, or col. 2, lines 38-42. Maag defines the phrase at col. 2, lines 59-67 as excluding all but "possible content arising from industrial contamination." By contrast, amended claim 62 (and those dependent thereon) recites that the thermally curable component-(component (b)) comprises at least one vinyl group, which is excluded from Maag's composition by the proviso just stated. Moreover, none of the other references cited in the Office Action cures this deficiency. Accordingly, Maag fails to teach or render obvious Applicants' claimed composition.

Independent claim 76 (and those dependent thereon), is drawn to a coating composition wherein component (a) comprises at least one material comprising at least one ultraviolet radiation curable reactive functional group and at least one thermally curable reactive functional group. The Examiner has apparently overlooked this fact in the rejection because it is Applicants understanding that Maag does not teach or suggest a composition comprising both of the recited types of reactive functional groups in the same material. On the contrary, neither the component of system A) nor the component of system B) of Maag's composition is a component having both types of reactive functional groups, as recited in claim 76 and those dependent thereon.

Moreover, none of the other references cited in the Office Action cures this deficiency. Accordingly, Applicants respectfully submit that this rejection is improper and request that it be withdrawn.

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CLAIM REJECTIONS - 35 U.S.C. § 103

1) Maag et al. in View of Lutz et al.

In section 13 of the Office Action, the Examiner rejected claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Maag et al., supra, in view of Lutz et al. ("Lutz"), U.S. Patent No. 5,077,083, for reasons stated in section 13 of the Office Action. The Examiner alleged that it would have been obvious to "incorporate" Lutz's polysiloxanes into "system B)" of Maag's composition. Specifically, the Examiner asserted that one skilled in the art would have "found it obvious to incorporate [Lutz's] polysiloxanes in the system B) of Maag et al. The motivation for doing so would have been to improve the curing, hardness and adhesive properties of the coating disclosed in Maag et al. See Lutz et al. col. 2, lines 19-27." Office Action, page 5, section 13. Applicants respectfully disagree with the Examiner's conclusion.

To establish a prima facie case of obviousness, three basic criteria must be met. These criteria include that the Examiner show there would have been some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify and combine reference teachings, and that the Examiner show that there would have been a reasonable expectation that the proposed modification will be successful. See M.P.E.P. 2143.02. If no such reasonable expectation of success exists, the proposed modification could not have been obvious. *Id.* Furthermore, the proposed modification cannot be considered obvious if it would render the prior art unsuitable for its disclosed purpose. See

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M.P.E.P. 2143.01. Applicants respectfully point out that neither requirement can be met for the combination and modification proposed by the Examiner.

The Examiner points to nothing in the cited prior art, or in knowledge generally available to the art, to suggest that "incorporating" Lutz's siloxanes into "system B)" of Maag's composition (as the Examiner proposes) would improve Maag's compositions. As an initial matter, Applicants note that the Examiner does not explain whether "incorporating," as used in the rejection, means to substitute Maag's component B with Lutz's siloxanes, or to add Lutz's siloxanes to Maag's system B. Applicants address each.

Applicants respectfully submit that it would not have been obvious to substitute Lutz's polysiloxanes for Maag's component B. The Federal Circuit has held that there must be a clear and particular suggestion in the prior art to combine the teachings of the cited references in the manner proposed by the Examiner. As explained by the Federal Circuit, "[o]ur case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references." *In re Dembiczak* 50 USPQ2d 1614, 1617 (Fed. Cir. 1999).

The Examiner can meet the burden of establishing a prima facie case of obviousness "only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references." *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988) (internal citations omitted) (emphasis added).

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On January 18, 2002, the Federal Circuit again reaffirmed the Examiner's high burden to establish a *prima facie* case of obviousness and emphasized the requirement for specificity. In *In re Sang-Su Lee*, the Federal Circuit held that "[t]he factual inquiry whether to combine references must be thorough and searching. It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with." 277 F.3d 1338, 1433 (Fed. Cir. 2002). Further, the Federal Circuit explained that

[t]he need for specificity pervades this authority... the examiner can satisfy the burden of showing obviousness of the combination only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.

Id. (internal citations and quotation omitted) (emphasis added).

In the present case, Applicants respectfully submit that the Examiner has failed to point to requisite objective teaching, nor do Applicants believe that such an objective teaching is present in the references. Additionally, Applicants believe the teachings of the references discussed below would teach away from the combination suggested by the Examiner.

Maag has strict requirements for component B that Lutz's siloxanes would not satisfy. For example, in describing "essential" characteristics of the invention, Maag discloses that component B must contain C=C (olefinic) unsaturation such that the composition is curable by high energy radiation by free-radical polymerization of olefinic double bonds. Maag, col. 4, lines 28-44. In contrast, Lutz's siloxanes do not necessarily contain olefinic unsaturation; thus, they do not meet Maag's requirements.

Further, Maag requires that component A and component B be incapable of reacting with one another. The Examiner fails to explain why one skilled in the art would reasonably expect that Maag's component A would not react with Lutz's siloxanes (which can contain hydroxyl functionality), as would be required to satisfy Maag's requirements for the active ingredients in his compositions. Consequently, there would be no motivation to support the substitution of Lutz's siloxanes for Maag's component B and such a substitution would render Maag's composition unsuited to Maag's specifications.

It would also not have been obvious to add Lutz's siloxanes to Maag's component B for the following reasons. Maag also requires the weight percentages of components A and B to add up to 100 wt. % of the system. See, e.g., Maag Abstract. Adding a third active component would run afoul of this requirement. Moreover, Maag requires the C=C equivalent weight of the entire resin solids content formed from the total of system A and B to be between 300 and 10,000. Thus, one would have to increase the relative proportions of Maag's component B to maintain this C=C equivalent weight to compensate for adding Lutz's siloxanes if one were to do as the Examiner suggests. No reasonable expectation of success could be predicated on making such a fundamental change in Maag's instructions.

Accordingly, Applicants respectfully submit that neither the substitution nor the addition of Lutz's siloxanes for Maag's system B) could have been obvious under §103(a), and Applicants respectfully request that this rejection be withdrawn.

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2) Maag et al. in View of Wilt et al.

In section 14 of the Office Action, the Examiner rejected claims 12-17 under 35 U.S.C. §103(a) as being unpatentable over Maag et al. in view of Wilt et al. ("Wilt"), U.S. Patent No. 5,939,491. The Examiner admits that Maag does not disclose

"that the thermally curable system A) can comprise the polysiloxanes recited in the instant claims. However, [the Examiner alleges,] Wilt et al. discloses the use of these polysiloxanes in curable compositions having excellent appearance, mar resistance, acid etch resistance, adhesion, pot life, tack time, and corrosion resistance (see abstract, col. 4-col. 6). One skilled in the art would have found it obvious to incorporate the polysiloxanes disclosed in Wilt et al. in the system A) of the composition of Maag et al. The motivation for doing so would have been to improve the above-recited properties."

Office Action, page 6, section 14. Applicants respectfully disagree.

As explained above, Maag recites strict requirements for each component in Maag's system A) and system B). Components suitable for Maag's system A) must be: 1) thermally curable by addition and/or condensation reactions (col. 4, lines ; 28-33); and 2) contain substantially no free-radically polymerisable double bonds and substantially no groups capable of reacting in another way with the free-radically polymerisable double bonds of system B (col. 4, lines 33-36). Wilt's polysiloxanes, for example, comprise the group R_a , which Wilt defines as containing the moiety R_1-O-X , wherein R_1 is alkylene, oxyalkylene, or alkylene aryl. See Wilt, col. 2, lines 15-39 and claims 1-9. Thus, Wilt's polysiloxanes could not satisfy Maag's requirements at least because these polysiloxanes would contain at least one free-radically polymerisable

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double bond. Consequently, it could not have been obvious to substitute or add Wilt's polysiloxanes in Maag's system A).

3) Maag et al. in view of Kang et al., Desobry, or Ohsawa et al.

In section 15 of the Office Action, the Examiner rejected claims 21-32 under 35 U.S.C. § 103(a) as being unpatentable over Maag in view of Kang et al. ("Kang"), U.S. Patent No. 6,245,833. In section 16 of the Office Action, the Examiner rejected claim 37 under § 103(a) as being unpatentable over Maag in view of Desobry, U.S. Patent No. 6,251,962. Finally, in section 17 of the Office Action, the Examiner rejected claims 38-39 under sec. 103(a) as being unpatentable over Maag in view of Ohsawa et al. U.S. Patent No. 6,207,235.

Applicants respectfully disagree, and submit that nothing in any of the three secondary references make up for the deficiencies in Maag set forth above with respect to independent claim 1. Specifically, nothing in Kang, Desobry, or Ohsawa would have led one of ordinary skill in the art to use at least one polysiloxane in either "system A)" or "system B)" of Maag's composition, nor does the Examiner allege that such a teaching exist in these secondary references.

Accordingly, Kang, Desobry, and Ohsawa each fail to make up for the deficiencies of Maag discussed above. Applicants therefore request that the three rejections under § 103(a) relying upon Kang, Desobry, or Ohsawa as secondary references be withdrawn.

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CONCLUSION

In view of the foregoing amendments and remarks, Applicants respectfully request the reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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Dated: February 3, 2003

By: 

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APPENDIX TO AMENDMENT OF FEBRUARY 3, 2003

VERSION WITH MARKINGS TO SHOW CHANGES MADE

AMENDMENTS TO THE CLAIMS

Claims 1, 12, 37, and 62 have been amended as follows:

1. (Amended) A coating composition formed from components comprising:

(a) at least one first material comprising at least one radiation curable reactive functional group;

(b) at least one second material comprising at least one thermally curable reactive functional group;

(c) at least one curing agent reactive with the at least one thermally curable reactive functional group, the at least one curing agent being selected from aminoplast resins, polyisocyanates, blocked polyisocyanates, triazine derived isocyanates, polyepoxides, polyacids, polyols and mixtures of the foregoing; and

(d) a plurality of particles selected from inorganic particles, composite particles, and mixtures of the foregoing,

wherein each component is different; and

wherein at least one of the at least one first material or the at least one second material comprises at least one polysiloxane.

10. (Amended) A coating composition according to claim 1, wherein the at least one thermally curable reactive functional group is selected from [the group consisting of] hydroxyl groups, vinyl groups, urethane groups, urea groups, amide

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groups, carbamate groups, isocyanate groups, blocked isocyanate groups, epoxy groups, carbonyl groups, amine groups, anhydride groups, hydroxyalkyl amide groups, and aziridine groups.

11. (Amended) A coating composition according to claim 1, wherein the second material is a film-forming polymer selected from [the group consisting of] hydroxyl functional polymers, polyesters, acrylic polymers, polyurethanes, polyureas, polyamides, carbamate functional polymers, polyisocyanates different from curing agent (c), blocked polyisocyanates different from curing agent (c), polyepoxides different from curing agent (c), polyethers, polyacids different from curing agent (c), polyamines, polyanhydrides and copolymers and mixtures of the foregoing.

12. (Amended) A coating composition according to claim [11] 1, wherein the second material comprises at least one polysiloxane.

37. (Amended) A coating composition according to claim 35, wherein the at least one photoinitiator is a 50:50 blend, based on the total weight of the dispersion, of 2-hydroxy-2-methyl-1-phenyl proan-1-one and 2,4,6-trimethyl benzoyl diphenyl phosphine oxide.

62. (Amended) A coating composition formed from components comprising:

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- (a) **at least one** [a] first material comprising at least one radiation curable reactive functional group;
- (b) **at least one** [a] second material comprising at least one thermally curable reactive functional group;
- (c) at least one curing agent reactive with the at least one thermally curable reactive functional group, the at least one curing agent being selected from aminoplast resins, polyisocyanates, blocked polyisocyanates, triazine derived isocyanates, polyepoxides, polyacids, polyols and mixtures of the foregoing; and
- a plurality of particles,
- wherein each component is different, **and**
- wherein the at least one second material comprises at least one vinyl group.**